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ABSTRACT

A workbook designed to teach creative attitudes and idea-producing techniques, previously used successfully with middle-class students, was field tested with 6th and 8th grade inner city students divided into training and control groups. Results were evaluated by an attitude survey and three subtests from the Torrance Battery. The results were partly negative or ambiguous and it was impossible to draw conclusions about the effectiveness of the workbook in this situation. However, 75% of the students in the training group felt that they had benefited from the course and this was endorsed by a majority of their teachers. The training materials, the low abilities of the students in the classes chosen, the teacher's handling of the materials and class (due to inadequate pretraining), insensitivity of the tests, and oversensitivity of the survey, are all factors that may have affected the results, thus making the apportionment of blame impossible. (GS)

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PROBLEMS IN ASSESSING THE EFFECTIVENESS OF CREATIVE THINKING*

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Problems in Assessing the Effectiveness of Creative Thinking*

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Today, I wanted to briefly summarize a few of the major problems I recently encountered in attempting to field test some creativity training materials with 6th and 8th grade low-ability, inner-city students. Essentially, my report will be an applied version of the theoretical problems described by other members of this panel.

I will first present a brief overview of the training materials, creativity tests, and the experiment, and then describe some of the problems associated with each of our dependent creativity measures.

The training materials consisted of a 150-page workbook entitled "Thinking Creatively: A Guide to Training Imagination," which we designed for use by 6th, 7th, and 8th-grade students. The workbook is in the form of a humorous dialogue among four cartoon story characters. Mr. I is a backyard scientist-inventor type, who leads Dudley, Maybelle, and Max (our professional bear) through various

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enlightening problem-solving episodes in which Mr. I attempts to teach the other three characters various principles and procedures of creative problem solving. At the end of each of the ten chapters, the important principles are reviewed and exercises are presented which allow the students themselves to solve problems similar to those solved by the cartoon characters within the story line.

The workbook mainly attempts to teach students a particular set of attitudes which are considered to be conducive to creative behavior. For example, one of the most important creative attitudes is simply an appreciation for unusual, imaginative ideas. The program also teaches various "forced combination" techniques for systematically producing new combinations of ideas.

Regarding tests, since the program teaches creative attitudes plus techniques for producing ideas, we used a 20-item attitude survey, along with three subtests from the Torrance Battery (the Product Improvement, Unusual Uses, and Consequences tests).

In addition to the attitude scales and the "creativity tests," which four control and four experimental classes received, the students and teachers in the experimental, training classes were asked additional questions. For example, both students and teachers were asked if the program was difficult to read or understand. Students were asked rather directly, "Do you feel more creative as a result of the training?" Teachers also were asked if they thought their students benefited from the training experience.

So much for the materials and tests. Now: What happened?

Let me begin by presenting a truism relating to experimental control and the interpretation of results. The types of controls and dependent measures used in this frankly difficult, real-world field study--the random selection of schools, the clean, factorially-balanced experimental design, the use of commercially-available, standardized tests--these controls allow one to draw conclusions pertaining to the materials only when the experimental results are clearly positive. That is, if the trained classes had clearly performed more creatively than untrained classes, we undoubtedly would have concluded that our materials absolutely can increase the creative-thinking skills of inner-city students. On the other hand, if the results are partly negative or ambiguous, as in fact they were in this field test, we found it impossible to draw conclusions regarding the effectiveness or ineffectiveness of the training materials.

Imagine, for a moment, that you have analyzed the test results of a creativity-training study with below-average IQ, inner-city students.

Consider, first, the Torrance Tests of Creativity Thinking. The Torrance tests generally showed little difference between the trained and untrained classes. More specifically, just two of the four experimental classes showed a moderate improvement in Torrance test scores. Now, is this partly-negative outcome because the training

materials are only slightly effective? Or maybe the training materials are not effective for these particular students, who were obviously very weak in "basic skills." Average reading ability runs 2-3 years below grade level. Or maybe I should blame the teachers of the training classes. Actually, since two of the four experimental classes showed moderate gains in fluency, flexibility, and originality scores, perhaps half of my teachers were not adequately trained to effectively use the materials.

In addition to the truth-obscuring problems with students and teachers, we have the Torrance tests themselves. Can we be sure that these tests are reliable, valid and, most important of all, sensitively accurate in measuring creativity? Hardly!

Now to the problem of measuring creative attitudes. In a sentence: We found fairly strong, positive effects of the training, but--and here is the problem--these (quote) "creative attitudes" could be social desirability responses. That is, the group who read the program knew the "right" attitudes to display on the questionnaire. The dilemma here is whether to use test items similar to the content of the training materials--and increase the likelihood of getting positive results--or to use highly dissimilar attitude items, thereby decreasing the sensitivity of the test instrument.

As a final dependent measure, we had the testimonies of the students and teachers of the experimental classes. About 75% of

the trained students agreed that they "felt more creative" as a result of the training. Also, two of the four teachers of the training classes gave an unqualified "definitely" when asked if their students benefited from the creativity training. Another teacher gave qualified support (and this is instructive), saying, "Yes, at least they benefited as much or more from this experience as from any other that we tried." The fourth teacher thought that very few of her low-ability, low-originality, undisciplinable students learned anything from the training.

In sum, my conclusions related to assessing creativity training are these: Again, if the results of a difficult, complex field test such at this are partly negative or ambiguous, one can reach no conclusions regarding the value of the materials. We don't know whether to blame the training materials themselves, the low abilities of our student population, the teacher's possible mishandling of the materials and the class (due to our not training them properly), the insensitivity of the divergent thinking tests, the oversensitivity of attitude surveys, or perhaps other problems whose discovery is still pending.

To end on a positive note, we remain convinced that our training program can increase the creative thinking attitudes and skills of disadvantaged, inner-city students, just as it did with middle-class students in an earlier study. However, I am having a devil of a time unambiguously proving it.